

REMARKS

Claims 1-15 are pending in the application.

Claims 7-15 stand withdrawn as non-elected and are hereby cancelled without prejudice for presentation in a divisional application.

Claims 1-3, 5 and 6 are rejected.

Claim 4 is objected to.

Claims 1 and 5 are amended.

Claim 16 is added.

No new matter is added.

Claims 1-6 and 16 remain in the case.

Applicant requests reconsideration and allowance of the claims in light of the above amendments and following remarks.

Allowable Subject Matter

Applicant thanks the Examiner for indicating that Claim 4 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections – 35 USC § 103

Claims 1, 3 and 5 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Tseng (U.S. Patent No. 6,358,800) ("Tseng") in view of Sugawara, et al. (U.S. Patent No. 6,171,916) ("Sugawara").

Applicant respectfully traverses the rejections.

Amended independent claim 1 recites that "a pair of a low concentration source/drain region formed under the spacer, the low concentration source/drain regions being shallower than the lower trench region." The low concentration source/drain regions 11a are described on page 5, lines 6-7, as being shallower than the lower trench region 15.

Tseng discloses in FIG. 2J and at column 4, lines 34-42, source /drain extensions 138 wrapping around the bottom of the lower portion of the trench. Sugawara discloses in FIG. 1J and at column 5, lines 40-51, that impurity diffusion layer 12 and shallow junction layer 7 are integrated "to form a so-called LDD (lightly doped drain) structure" that extends below the lower portion of the trench.

Thus, neither Tseng nor Sugawara disclose "a pair of a low concentration source/drain region formed under the spacer, the low concentration source/drain regions being shallower than the lower trench region," as recited in amended claim 1.

Consequently, the combination of Tseng and Sugawara fails to disclose each and every element of independent claim 1. Thus independent claim 1 is believed to be allowable over the combination of Tseng and Sugawara and the applicant respectfully requests allowance of this claim.

Claims 3 and 5 depend from independent claim 1, and for at least the same reasons these claims are believed to be allowable and the applicant respectfully requests allowance of these claims.

Further, added claim 16 recites that the second spacer of claim 3 that is adjacent to the isolation layer is located orthogonal to the first spacer of claim 3 that is adjacent to the active region. FIGS. 3A and 3B of the present application are cross-sectional views taken along lines I-I and II-II, respectively, in FIG. 2. As shown in FIG. 2, lines I-I and II-II lie orthogonal to each other, and thus the second spacers 13b in FIG. 3B are located orthogonal to the first spacers 13a in FIG. 3A.

Claims 2 and 6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Tseng in view of Sugawara, as applied to claim 1 above, and further in view of Garcia (U.S. Patent No. 5,317,346) ("Garcia").

Claims 2 and 6 depend from independent claim 1 and thus include all of the limitations of independent claim 1. Garcia fails to cure the deficiencies of Tseng and Sugawara with respect to claim 1 because Garcia does not disclose "a pair of a low concentration source/drain region formed under the spacer, the low concentration source/drain regions being shallower than the lower trench region."

Consequently, Tseng in view of Sugawara, in further view of Garcia, fails to disclose each and every element of independent claim 1.

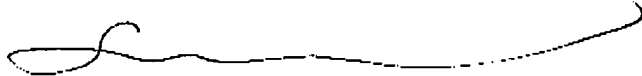
Claims 2 and 6, for at least the same reasons given for claim 1, are believed to be allowable and the applicant respectfully requests allowance of these claims.

For the foregoing reasons, reconsideration and allowance of claims 1-6 and 16 of the application as amended is solicited. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

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Respectfully submitted,

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Limited Recognition Under 37 CFR § 10.9(b)

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